

Work-related agricultural fatalities in Washington State, 1998-2001 October, 2002

Agricultural workers are exposed to many hazardous work environments. The fatality rate for the agriculture, forestry, and fishing industry in Washington State in the years 1997 to 1999 was 17.3 fatalities/100,000 workers, one of the highest of any major industry division.¹ From 1998 to 2001, there were 40 agricultural work-related fatalities in Washington State. The data presented in this report describes the circumstances connected with these deaths. Identifying common elements associated with these deaths may provide insight into what might be done to most effectively prevent future fatalities.

The Fatality Assessment and Control Evaluation (FACE) Program, operated by the Safety and Health Assessment and Research for Prevention (SHARP) Program at the Washington State Department of Labor and Industries provided the data and analysis for this report. The following text summarizes the data in Figures 1-9, while Table 1 lists all of the fatalities by county with the date of the incident, the industry of the business involved, the occupation of the worker, and a brief narrative of the incident. The National Institute for Occupational Safety and Health (NIOSH) provided partial funding for this work via cooperative agreement #CCU013928-06.

Data Summary of Agricultural Fatalities²

- Workers between the ages of 18 and 29 had the highest number of fatalities (12), with the other age groups, including those 70 years old and older, having between 3 and 6 workers die during the time period covered in this report. (Figure 1)
- Males accounted for 95% of the fatalities (Figure 2) compared to approximately 70% of the workforce³.
- Workers of Hispanic origin accounted for 35% of the fatalities (Figure 3) compared to approximately 69% of the workforce³.
- No clear trend of fatalities over time is apparent, but the most fatalities occurred in 1998 (15) and fewest in 1999 (5). (Figure 4)
- When the fatalities are totaled by month over the 4-year period, for the 10 months from February to May and July to December, there were between 3 and 5 fatalities each month. For January and June, there were only one each month for the entire time period. (Figure 5)
- A little more than half of the fatalities occurred in 4 industry sectors; Deciduous tree fruit production (15%), Wheat production (12.5%), Field crop production, except cash grains, not elsewhere classified (12.5%), and General farms, primarily crop (12.5%) (Figure 6). In 2001, tree fruits accounted for 41%, wheat 2%, field crops 6%, and general farms 6% of the jobs in agriculture³, which is a different balance than the distribution of fatalities. This

¹ Data from the US Bureau of Labor Statistics, Census of Fatal Occupational Injuries Program and the Current Population Survey.

² For this report the agriculture industry is defined by Standard Industrial Classification (SIC) codes 0111 to 0783. Forestry and fishing related fatalities are not included in this report. Work-related fatalities are defined elsewhere (<http://www.lni.wa.gov/sharp/face/dathome.htm>).

³ "Agricultural Workforce in Washington State, 2001", Labor Market and Economic Analysis Branch, Washington State Employment Security Department., June 2002

suggests that workers in the tree fruit sector may actually have a lower risk of fatal injury compared to those in the other sectors.

- Motor vehicles collisions and machinery accounted for 47% of the fatalities with falls, drownings, and homicides, each accounting for 10% of the fatalities. The machinery-related incidents were relatively spread out between the categories of being caught in, run over, and overturned onto. Incidents where a tractor was traveling on a public roadway were considered a “motor vehicle” incident. All other tractor incidents were considered “machinery” related. (Figure 7)
- Forty-two percent of the victims were farmworkers, whereas farmers accounted for only 25% of the deaths. Both the farmers and farmworkers were killed in incidents relating to motor vehicle and machinery use, but only the farmworkers were killed by homicide and drowning. (Figure 8).
- Thirty-seven percent of the fatalities occurred in Yakima and Grant counties. While 27% of the fatalities occurred in Benton, Franklin, and Spokane counties. (Figure 9).

Tractor-related fatalities.

For the years 1998-2001, there were 8 tractor or combine-related deaths in agriculture. These are described below:

- 2 overturns from roadway
- 1 overturn while on farmlands
- 1 grass fire
- 1 fell off tractor and was run over
- 1 motor vehicle collision on a roadway
- 1 lost control driving on gravel and crashed

General Recommendations

- Motor vehicle collisions accounted for 27% of the agricultural fatalities in this time period. Attention should be paid to vehicle-specific driver training and vehicle maintenance. Special training should be given for situations when workers will be hauling loads or equipment on public roads or on farmlands. The use of seatbelts is required by law on public roadways in Washington State and highly recommended on private farms.
- Machinery-related incidents accounted for 20% of the fatal incidents. Proper maintenance and operation procedures should be followed and enforced as well as safe driver's training, as discussed above. A number of the machinery-related fatal incidents occurred during “upset” conditions where a worker was trouble shooting or un-jamming the machinery. The machinery’s owner’s manual or manufacturer should be consulted for the correct methods to un-jam or troubleshoot the specific piece of machinery. Energy sources should be de-energized and locked out prior to work being done in their vicinity. Machinery should be appropriately guarded to protect workers from exposure to moving parts.
- So far for the year 2002, as of October 4, there have been 6 work-related agricultural fatalities. Two of the incidents involved overturns of orchard tractors while on farmlands. Given these incidents, we recommend when possible, to use tractors with Roll Over Protection Structures (ROPS) and seatbelts.

Agriculture Safety Resources

The National Institute for Occupational Safety and Health (NIOSH) maintains an agriculture safety and health topic web page.

<http://www.cdc.gov/niosh/topics/agriculture/default.html>

The Occupational Safety & Health Administration (OSHA) maintains an agricultural operations safety and health topic web page.

<http://www.osha.gov/SLTC/agriculturaloperations/index.html>

Pacific Northwest Agricultural Safety & Health (PNASH) Center
Department of Environmental Health, (800) 330-0827

<http://depts.washington.edu/pnash/links.htm>

The Eastern Washington University Center for Farm Health and Safety, (509) 359-7995

<http://www.farm.ewu.edu/>

Spanish language publications and web pages, as well as information about organizations and projects addressing the safety and health concerns of Spanish speaking farmworkers may be accessed through many of the resources listed above.

WISHA Consultation Program

Washington State
Department of Labor and Industries

Everett (Region 1, Northwest Washington)

425-290-1300

Seattle (Region 2, King County)

206-515-2880

Tacoma (Region 3, Pierce, Kitsap, Clallam, and Jefferson Counties)

253-596-3800

Olympia (Region 4, Southwest Washington)

360-902-5799

East Wenatchee (Region 5, Central and Southeastern Washington)

509-886-6500

Spokane (Region 6, Eastern Washington)

509-324-2600

WA Fatality Assessment & Control Evaluation (FACE) Program

Safety and Health Assessment and Research for Prevention (SHARP) Program
WA State Department of Labor and Industries

PO Box 44330

Olympia, WA 98504

(360) 902-5669 or; 1-888-667-4277 (toll-free)

<http://www.Lni.wa.gov/sharp/face>

clav235@Lni.wa.gov

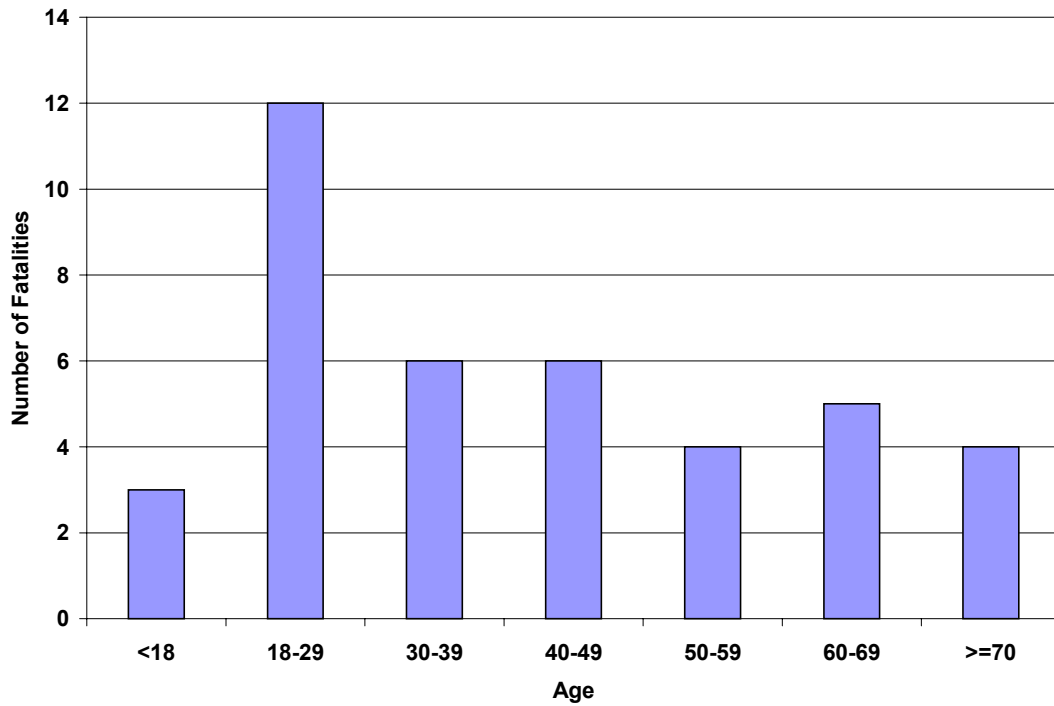


Figure 1. Number of work-related agricultural fatalities by workers' age, WA FACE Program, 1998-2001.

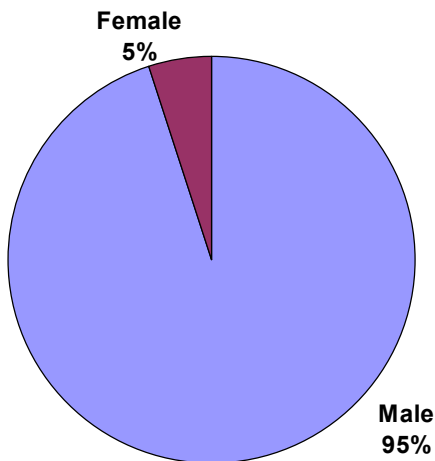


Figure 2. Percent of work-related agricultural fatalities by workers' gender, WA FACE Program, 1998-2001.

Hispanic Origin
35%

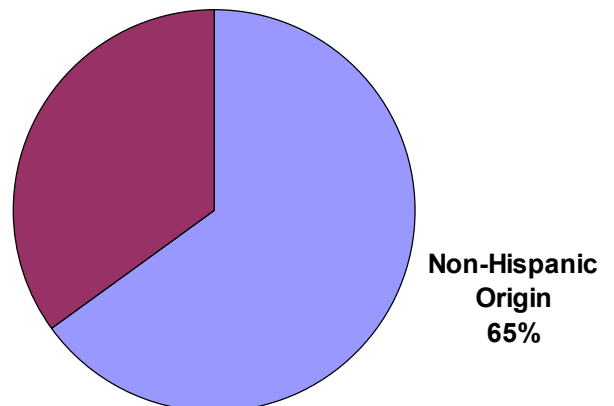


Figure 3. Percent of work-related agricultural fatalities by workers' ethnicity, WA FACE Program, 1998-2001.

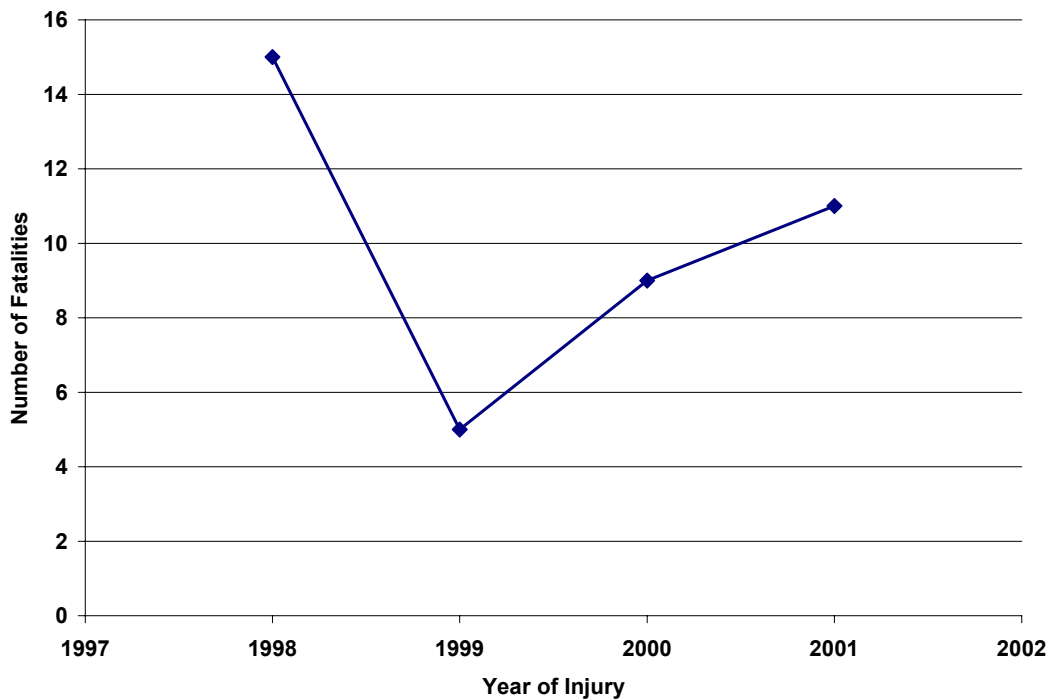


Figure 4. Number of work-related agricultural fatalities by year, WA FACE Program, 1998-2001.

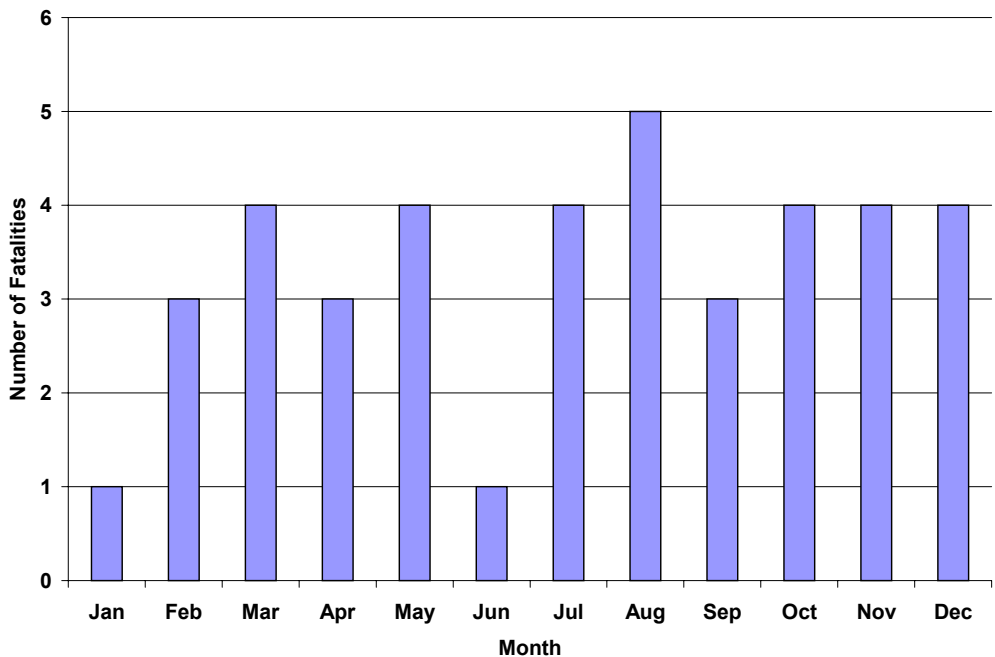


Figure 5. Number of work-related agricultural fatalities by month of the incident, WA FACE Program, 1998-2001.

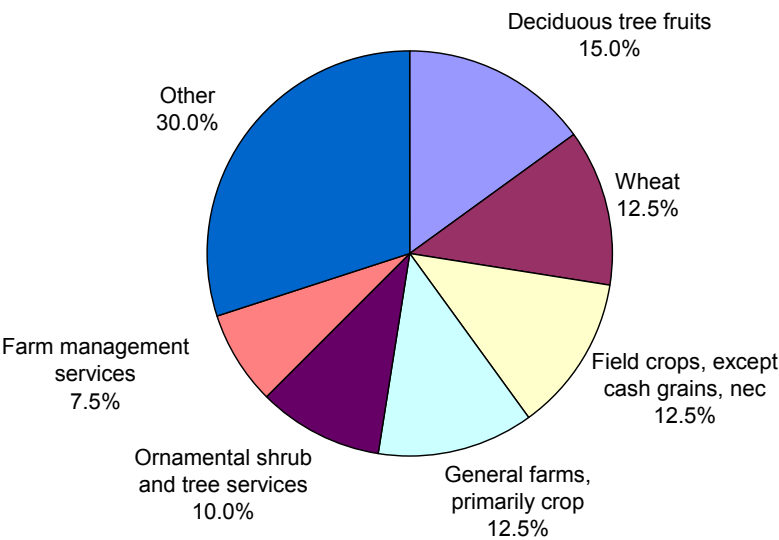


Figure 6. Percent of work-related agricultural fatalities by industry, WA FACE Program, 1998-2001.

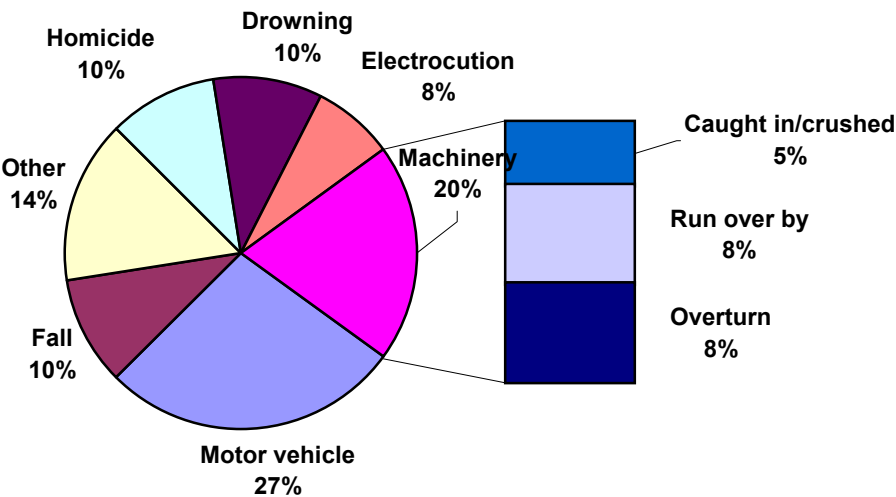


Figure 7. Percent of work-related agricultural fatalities by type of incident, WA FACE Program, 1998-2001.

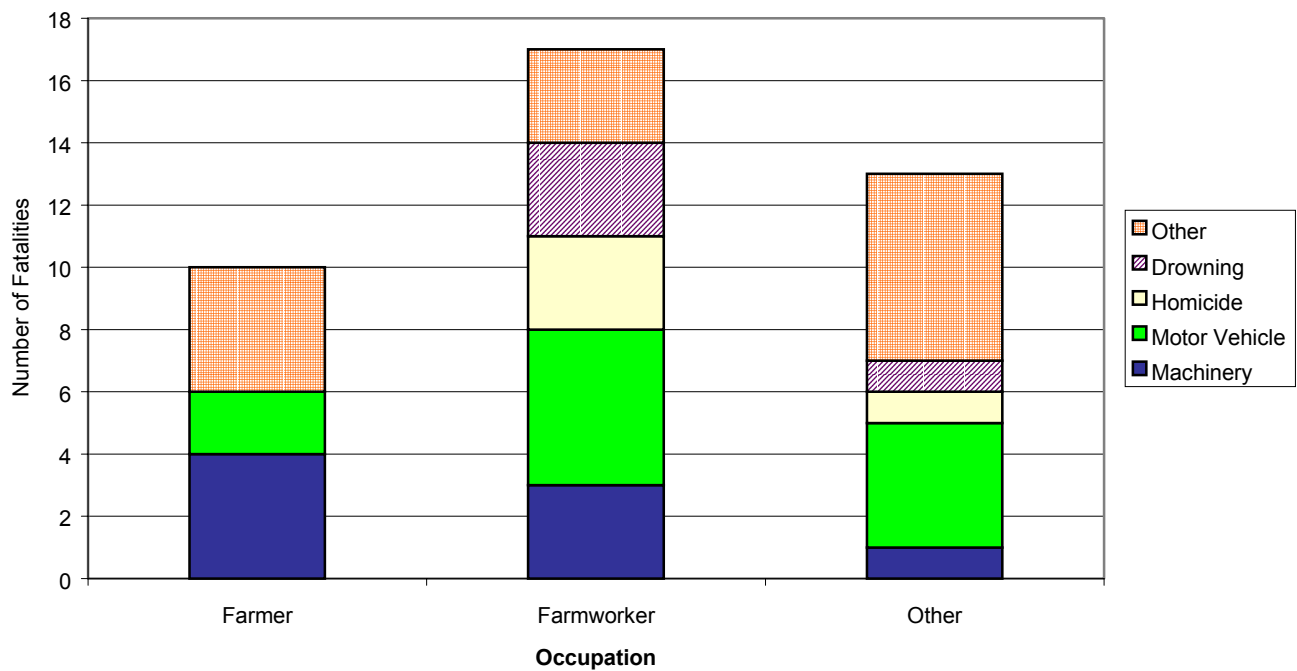


Figure 8. Number of work-related agricultural fatalities by occupation and incident type, WA FACE Program, 1998-2001.

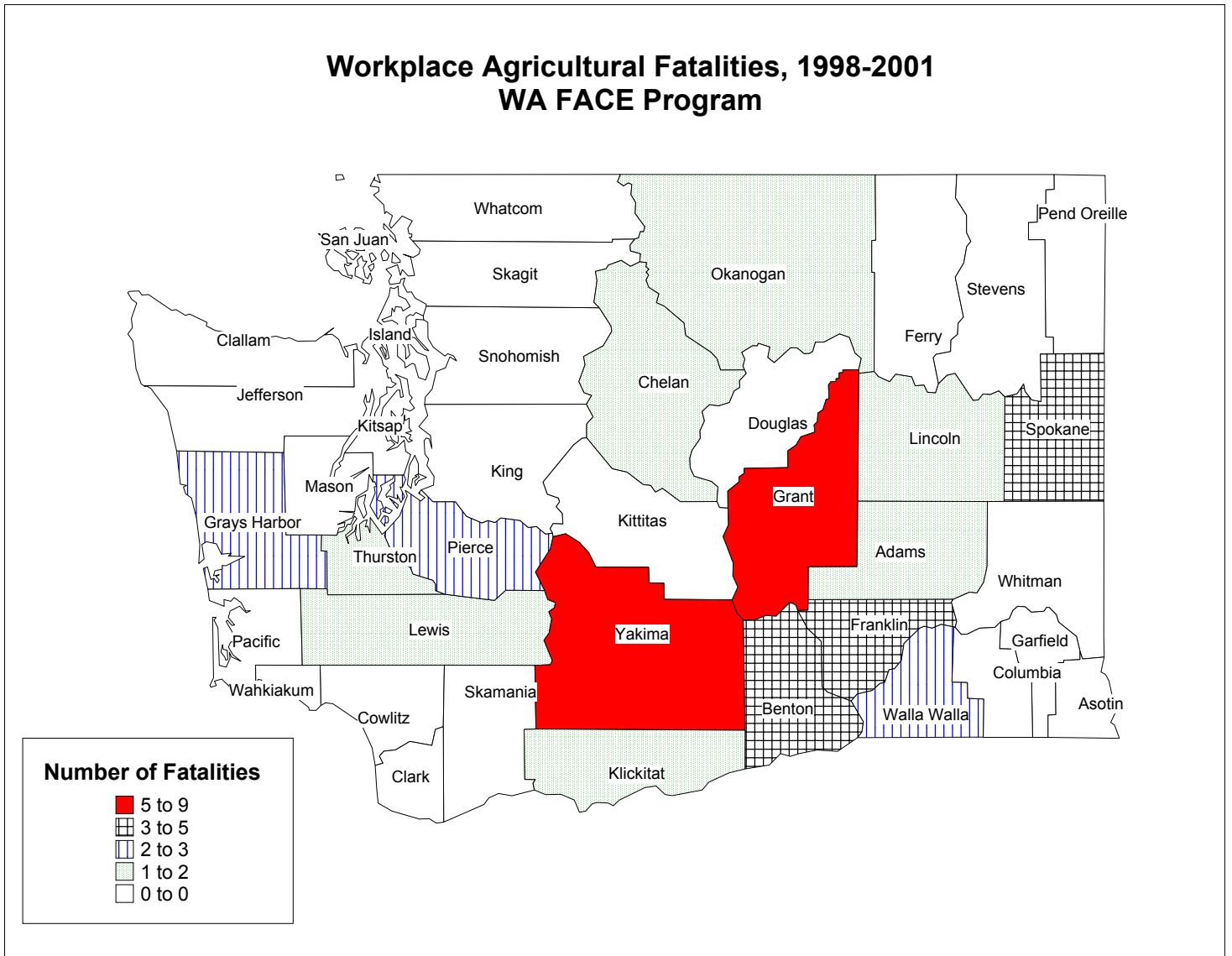


Figure 9. Number of work-related agricultural fatalities by county, WA FACE Program, 1998-2001.

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Table 1 Listing of work-related agricultural fatalities in Washington State, WA FACE Program, 1998-2002 (as of October 4, 2002).

County	Date of Incident	Industry	Occupation	Narrative of Incident
Adams	29-Jul-98	Wheat	Farmer	Decedent was operating a wheat combine when a grass fire overtook his combine. He was overcome by smoke and flames.
Benton	3-Sep-98	Wheat	Farmer	Decedent was a passenger in a truck driven by her husband which pulled onto highway and was then struck from behind by a semi-truck. Decedent and husband were operators of a wheat farm. They were transporting a load of grain to an elevator when the collision occurred.
Benton	6-Jan-00	Animal specialty services, except veterinary	Farmworker	A horse trainer was giving a lesson in riding techniques to two clients. He led his horse off a bridle trail into the shallow water of a river when the horse bolted into the river and threw him into deep water. He struggled but eventually succumbed and drowned in the 41 degree water.
Benton	30-Aug-00	General farms, primarily crop	Supervisor of farmworkers	A farm manager was on a wooden catwalk which was bolted to the ceiling of an empty potato shed. The catwalk collapsed, sending him 28 feet to the dirt floor.
Benton	5-Jul-01	Field crops, except cash grains, nec	Supervisor of farmworkers	A sport utility vehicle struck and killed a hops farmworker as he walked along a rural road. At the time of the incident, the farmworker had been walking beside a farm tractor pulling a forklift with a flat tire.
Chelan	27-Jul-98	Deciduous tree fruits	Farmworker	Decedent was working in orchard and died of heat stroke
Franklin	4-Nov-98	Beef cattle, except feedlots	Rancher	Two truck drivers died in head on collision. Decedent was driving pickup truck with trailer full of cows. The other driver attempted to pass a turning vehicle on a rural highway and struck decedents' vehicle, which was travelling in the opposite direction, with his tanker truck loaded with carbon dioxide.
Franklin	11-Oct-00	Potatoes	Farmworker	A farm laborer was working with a crew harvesting potatoes using a mechanical harvester. He went inside the harvester to disengage weeds that had fouled its power take-off shafts. The driver of the tractor pulling the harvester, believing the worker had cleared the machine, started it up again. The worker, who was still inside, was caught up in the shafts and thrown against the machine, killing him.

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Table 1 Listing of work-related agricultural fatalities in Washington State, WA FACE Program, 1998-2002 (as of October 4, 2002), cont.

County	Date of Incident	Industry	Occupation	Narrative of Incident
Franklin	21-Mar-01	General farms, primarily crop	Farmworker	Two farm laborers were traveling in a pick-up truck to move a handline irrigation system at one of his employer's fields. En route the pick-up was hit broadside on the passenger side by a garbage truck that ran a stop sign. The victim, who was a passenger of the vehicle, was hospitalized and died nine days later of his injuries.
Franklin	11-Oct-01	Crop preparation services for market, ex. cotton ginning	Farmworker	A farmworker was driving an orchard tractor and towing a load of empty apple bins down a hill when the tractor got away from him and rolled over. He was thrown from the tractor. The tractor was not equipped with a ROPS, as it was being used in an orchard.
Grant	2-Apr-98	Farm management services	Farmworker	Decedent fell into irrigation canal (3' deep and 3' wide) with approximately 1' of water moving 25-30 mph. He was pulled into the "dragon's teeth" and drowned.
Grant	2-Apr-98	Farm management services	Farmworker	Decedent may have tried to rescue co-worker from drowning in an irrigation canal. He was drowned at the "dragon's teeth", which are an energy dissipation mechanism used in irrigation canals.
Grant	27-Jul-98	General farms, primarily crop	Farmer	Decedent was working on a hay baler and was crushed by a stacker table. He was working alone and was found by his son.
Grant	16-Nov-99	General farms, primarily crop	Farmworker	Worker #1 fell into a well tailings pit that was about 100 feet long by 50 feet wide and ten feet deep containing water, silt and foam. Worker #2 attempted to rescue him. They both drowned.
Grant	23-Feb-01	Farm management services	Supervisor of farmworkers	Two employees were laying out telephone cable from a spool attached to the forks of a forklift. One worker was driving the forklift up a slight uphill grade when the other worker (the victim) jumped on to the side of the forklift to catch a ride. The forklift spun around and the victim tried to jump clear but was pinned under the roll cage when the forklift fell on him.
Grant	2-Jun-01	Beef cattle, except feedlots	Farmer	The owner of a beef cattle farm was found in his office with a self-inflicted gunshot wound to the head.
Grays Harbor	15-Mar-00	Field crops, except cash grains, nec	Farmer	A farmer fell off a stationary flatbed truck containing a load of hay that was being delivered. He struck his head on the ground.
Grays Harbor	27-Oct-00	Dairy farms	Supervisor of farmworkers	A dairy farm manager was killed when his pickup truck loaded with livestock feed collided head-on with a semi-truck on a state highway
Klickitat	22-May-98	Wheat	Farmer	Decedent fell off tractor and was run over by tire of swather.

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Table 1 Listing of work-related agricultural fatalities in Washington State, WA FACE Program, 1998-2002 (as of October 4, 2002), cont.

County	Date of Incident	Industry	Occupation	Narrative of Incident
Lewis	22-Dec-01	Dairy farms	Farmworker	A farm laborer was helping replace a roof on a calf barn. He stepped on a rotten board and fell through the roof to the floor of the barn. He died the next day in the hospital.
Lincoln	22-May-01	Deciduous tree fruits	Farmer	A light aircraft piloted by the owner of a farm was surveying his fields when his plane crashed in a wheat field, killing him and injuring a farmworker who was a passenger.
Okanogan	26-Aug-00	Field crops, except cash grains, nec	Farmer	A tractor with a baler attached was being worked on by a farmer. No one observed the incident, but it appears the tractor started to roll downhill and either the tractor or the bailer ran over the victim's legs causing him to bleed to death at the scene.
Pierce	11-Feb-98	Ornamental shrub and tree services	Groundskeeper	Decedent was cutting a tree that fell on a power line. The line landed on his truck. When the decedent reached for the door handle, he was electrocuted.
Pierce	17-Mar-98	Chicken eggs	Truck Driver	Individual was pinned between two trailer trucks. The decedent was standing behind his trailer when the second truck backed into him, pinning him between the two vehicles. The incident occurred on a farm.
Spokane	18-Mar-99	Ornamental shrub and tree services	Groundskeeper	Decedent was struck on the head by a 3 foot section of tree that fell from a height of 60 feet after a climber had cut it from a tree.
Spokane	12-Aug-99	Wheat	Farmworker	Victim was driving a combine down a steep hill that was covered with deep gravel. Victim lost control, swerved several times and then dropped over the edge of a ravine that was about 20 ft deep. The combine rammed into the ground front first, killing the victim.
Spokane	14-Oct-01	Ornamental shrub and tree services	Groundskeeper	A tree trimmer was electrocuted when he came into contact with a power line. He was pruning a tree and was about 25 to 30 feet up when the incident happened.
Thurston	21-Dec-00	Ornamental shrub and tree services	Supervisor related to agriculture	The victim was trimming a tree from an aerial lift. He was wearing a belt that had the chain saw attached, but he was not tied off to the aerial lift. The limb he was cutting fell, catching the chain saw and pulling him out of the basket. He fell 30 feet to the ground, hitting the winch as he fell.
Walla Walla	13-Feb-98	Cash grains, nec	Machinery Maintenance	Decedent was grinding in the farm's shop. A spark hit a nearby plastic container of flammable liquids which caught fire. The decedent carried the container outside and splashed the burning liquid on himself, resulting in 3rd degree burns on 80% of his body.

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Table 1 Listing of work-related agricultural fatalities in Washington State, WA FACE Program, 1998-2002 (as of October 4, 2002), cont.

County	Date of Incident	Industry	Occupation	Narrative of Incident
Walla Walla	23-Aug-99	Wheat	Farmworker	The victim was pulling a baler along a county road. He got too close to the edge of the road and rolled the tractor over.
Yakima	22-May-98	Deciduous tree fruits	Farmworker	Two decedents were re-filling their tank sprayers at a cherry orchard. Both were shot in the head multiple times.
Yakima	19-Sep-98	Field crops, except cash grains, nec	Farmworker	Decedent was driving a tractor on a road and was struck by a truck
Yakima	5-Dec-98	Deciduous tree fruits	Farmworker	Decedent was shot several times in chest by coworker. Dispute over a personal matter precipitated the assault. Incident occurred while the decedent was pruning trees on the employer's premises.
Yakima	29-Aug-00	Deciduous tree fruits	Farmworker	Worker driving a tractor was backing up a county road while pulling an apple bin loader. He turned around a corner and lost control of the tractor resulting in the tractor going into a ditch and rolling over. He was crushed by the tractor. There was no rollover protection.
Yakima	28-Nov-00	Ornamental floriculture and nursery products	Decorator	A decorator employed by a flower company was shot and killed by her estranged husband. He came to her place of employment and they stepped out of the building and into the company parking lot where he fatally shot her in the neck with a handgun. He then shot himself. The deceased had a restraining order against her spouse.
Yakima	3-Apr-01	Field crops, except cash grains, nec	Farmer	A farmer was running next to a mint planter to make sure it was feeding properly. He reached up to grab onto the planter, but slipped and was run over by the planter's wheel.
Yakima	1-Sep-01	Crop preparation services for market, ex. cotton ginning	Farmworker	Victim was carrying an irrigation pipe when the pipe came into contact with exposed power line. He was electrocuted.
Yakima	5-Dec-01	Lawn and garden services	Groundskeeper	The owner of a landscaping company was driving a pickup truck on an interstate highway with 2 employees as passengers. The truck hit a patch of ice that caused it to rollover several times. All 3 occupants were thrown from the vehicle. One person, a laborer, died at the scene. The others went to the hospital with serious injuries.